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WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2211

EXAMINER

WILSON, ALLAN R

ART UNIT PAPER NUMBER

2815

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,092

Applicant(s)

FRANCOIS, ROY

Examiner

Allan R. Wilson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12, 14, 15, 17, 19-24 and 26-35 is/are rejected.
- 7) ☒ Claim(s) 13, 16, 18 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claim Objections

Claim(s) 9 is objected to because of the following informalities:

Claim 9, the phrase "a same the" is confusing. /

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 15 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With regards to claims 15 and 17, the term "CMOS" was not described or illustrated in the application as filed. /

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 14, 15, 19-21 and 26-31 are rejected under 35 USC § 102(b) as being anticipated by Stevens.

With regards to claim 12, Stevens illustrates in figures 1-6, particularly figure 2, (entire document) a substrate 12 of a first conductivity type; a transistor 18 including a channel region (between 22 and 32) of the first conductivity type and a first region 22 of a second conductivity type disposed over the substrate, the first region serving as a source region of the transistor; and a photodiode 16 including the first region, a second region 24, 30 of the first conductivity disposed over the first region and a third region 28 of the second conductivity type disposed over the first region and spaced from the channel region.

With regards to claim 14, the claimed “the transistor is a precharge transistor” is not considered to add any structure to the claimed device and is considered to be intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte* Masham, 2 USPQ2d 1647 (1987).

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With regards to claim 15, Stevens illustrates in fig. 2 a MOS transistor.

With regards to claim 19, Stevens illustrates in fig. 2 the third region 28 is spaced from the second region 24, 30.

With regards to claim 20, Stevens illustrates in fig. 2 the second region 24, 30 is more heavily doped than the substrate 12.

With regards to claim 21, Stevens illustrates in fig. 2 the third region 28 is more heavily doped than the first region 22.

With regards to claims 26 and 27, the limitation “a junction of the first region and the substrate forms a junction of the photodiode” and “the photodiode is a fully-depleted-channel type of photodiode” are an inherent functions of the structure and since the prior art has the same structure and materials as the claimed invention it will have the same inherent functions.

With regards to claim 28 and 29, the claimed “the third region is operable to maintain a stable quiescent voltage during operation of the apparatus” and “the first region is operable to maintain a same stable quiescent voltage during operation of the apparatus as the third region” are not considered to add any structure to the claimed device and are considered to be intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte* Masham, 2 USPQ2d 1647 (1987).

With regards to claims 30, it is very well know in the art that the N and P type can be interchanged.

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With regards to claim 31, Stevens illustrates in fig. 2 the first conductivity type is P-type and the second conductivity type is N-type.

Claims 32-35 are rejected under 35 U.S.C. § 102(e) as being anticipated by Lee et al. (U.S. Patent No. 6,051,447, "Lee").

With regards to claim 32, Lee illustrates in figures 7A-8E (entire document) a photodiode of a fully-depleted channel type and a precharge transistor having a source region 45 that serves as a cathode of the photodiode, the method comprising: accumulating photo generated charges within the photodiode; and outputting to a processing circuit a first linear signal (figs. 7E and 8E) corresponding to the accumulated photo generated charges.

With regards to claim 33, Lee illustrates in fig. 7E outputting from the photodiode a second linear signal representing the accumulated photo generated charges; and generating the first linear signal (linear region 1) from the second linear signal (linear region 2).

With regards to claim 34, Lee illustrates in figures 7A-8E a photodiode of fully-depleted-channel type operable to accumulate photo generated charges; a precharge transistor having a source 45 region serving as a cathode of the photodiode; and means for outputting from the photodiode a linear control signal (figs. 7E and 8E) representing the photo generated charges.

With regards to claim 35, the claimed "read circuitry operable to receive the linear control signal from the photodiode and to generate a linear output signal from the linear control signal for input to a processing circuit" is not considered to add any structure to the claimed device and is considered to be intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not

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differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte* Masham, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22-24 are rejected under 35 USC § 103 (a) as being unpatentable over Stevens as applied to claim 12 above, and further in view of Yamashita et al. ("Yamashita") fig. 5-6C.

With regards to claim 22, Stevens is discussed above, it does not show a well of the first conductivity type, in which the first region is formed. Yamashita illustrates in figure 5 a well 34 of the first conductivity type, in which the first region 40 is formed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have p well in a p substrate to allow for the improvements of col. 3, lines 26-40.

With regards to claim 23, Yamashita illustrates in fig. 5 a junction of the well 34 and the first region 40 forms a junction of the photodiode.

With regards to claim 24, Yamashita illustrates in fig. 6A the well 38 is more heavily doped than the substrate 30.

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Allowable Subject Matter

Claims 1-11 are allowed for reasons given in the Paper No. 6 mailed 11/4/02. However, claim 9 must overcome the claim objection above.

Claims 13, 16, 18 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (703) 305-3490. If the Examiner can not be reached, call Supervisory Patent Examiner Eddie Lee whose telephone number is (703) 308-1690. Examiner Wilson can normally be reached 7:30-4:00 Monday-Thursday and 7:30-3:00 every other Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at telephone number (703) 308-0956. The fax numbers for the Art Unit are (703) 305-3432, 308-7722 and 308-7724.



Allan R. Wilson
Primary Examiner
5 May 2003